**Task 1.1**

**Verify kubectl installation**

C:\Users\NikolaySergeev>kubectl version --client

Client Version: version.Info{Major:"1", Minor:"21", GitVersion:"v1.21.5", GitCommit:"aea7bbadd2fc0cd689de94a54e5b7b758869d691", GitTreeState:"clean", BuildDate:"2021-09-15T21:10:45Z", GoVersion:"go1.16.8", Compiler:"gc", Platform:"windows/amd64"}

## Get information about cluster

C:\Users\NikolaySergeev>kubectl cluster-info

Kubernetes control plane is running at https://127.0.0.1:52549

CoreDNS is running at https://127.0.0.1:52549/api/v1/namespaces/kube-system/services/kube-dns:dns/proxy

To further debug and diagnose cluster problems, use 'kubectl cluster-info dump'.

## get information about available nodes

C:\Users\NikolaySergeev>kubectl get nodes

NAME STATUS ROLES AGE VERSION

minikube Ready control-plane,master 9m19s v1.22.2

# **Install**[**Kubernetes Dashboard**](https://kubernetes.io/docs/tasks/access-application-cluster/web-ui-dashboard/)

C:\Users\NikolaySergeev>kubectl apply -f https://raw.githubusercontent.com/kubernetes/dashboard/v2.3.1/aio/deploy/recommended.yaml

namespace/kubernetes-dashboard created

serviceaccount/kubernetes-dashboard created

service/kubernetes-dashboard created

secret/kubernetes-dashboard-certs created

secret/kubernetes-dashboard-csrf created

secret/kubernetes-dashboard-key-holder created

configmap/kubernetes-dashboard-settings created

role.rbac.authorization.k8s.io/kubernetes-dashboard created

clusterrole.rbac.authorization.k8s.io/kubernetes-dashboard created

rolebinding.rbac.authorization.k8s.io/kubernetes-dashboard created

clusterrolebinding.rbac.authorization.k8s.io/kubernetes-dashboard created

deployment.apps/kubernetes-dashboard created

service/dashboard-metrics-scraper created

Warning: spec.template.metadata.annotations[seccomp.security.alpha.kubernetes.io/pod]: deprecated since v1.19; use the "seccompProfile" field instead

deployment.apps/dashboard-metrics-scraper created

# **Check kubernetes-dashboard ns**

C:\Users\NikolaySergeev>kubectl get pods -n kubernetes-dashboard

NAME READY STATUS RESTARTS AGE

dashboard-metrics-scraper-856586f554-srwpf 1/1 Running 0 36s

kubernetes-dashboard-67484c44f6-qwh56 1/1 Running 0 36s

# **Install [Metrics Server](https://github.com/kubernetes-sigs/metrics-server" \l "deployment)**

C:\Users\NikolaySergeev>kubectl apply -f https://github.com/kubernetes-sigs/metrics-server/releases/latest/download/components.yaml

serviceaccount/metrics-server created

clusterrole.rbac.authorization.k8s.io/system:aggregated-metrics-reader created

clusterrole.rbac.authorization.k8s.io/system:metrics-server created

rolebinding.rbac.authorization.k8s.io/metrics-server-auth-reader created

clusterrolebinding.rbac.authorization.k8s.io/metrics-server:system:auth-delegator created

clusterrolebinding.rbac.authorization.k8s.io/system:metrics-server created

service/metrics-server created

deployment.apps/metrics-server created

apiservice.apiregistration.k8s.io/v1beta1.metrics.k8s.io created

## Update deployment

C:\Users\NikolaySergeev>kubectl edit -n kube-system deployment metrics-server

deployment.apps/metrics-server edited

## Connect to Dashboard

Изображение выглядит как текст

Автоматически созданное описание

**Task 1.2**

# **Kubernetes resources introduction**

AzureAD+NikolaySergeev@NS MINGW64 /d/GIT/information/docs/ecommerce (master)

$ kubectl run web --image=nginx:latest

pod/web created

AzureAD+NikolaySergeev@NS MINGW64 /d/GIT/information/docs/ecommerce (master)

$ kubectl get pods

NAME READY STATUS RESTARTS AGE

web 1/1 Running 0 96s

Изображение выглядит как текст

Автоматически созданное описание

AzureAD+NikolaySergeev@NS MINGW64 /d/GIT/information/docs/ecommerce (master)

$ minikube ssh

! Executing "docker container inspect minikube --format={{.State.Status}}" took an unusually long time: 6.8421694s

\* Restarting the docker service may improve performance.

docker@minikube:~$ docker ps

docker ps

CONTAINER ID IMAGE COMMAND CREATED STATUS PORTS NAMES

31ef2686474d nginx "/docker-entrypoint.…" 3 minutes ago Up 3 minutes k8s\_web\_web\_default\_22fd04eb-c2ad-4723-a6fa-8159ca126054\_0

e583ff7a8e91 k8s.gcr.io/pause:3.5 "/pause" 3 minutes ago Up 3 minutes k8s\_POD\_web\_default\_22fd04eb-c2ad-4723-a6fa-8159ca126054\_0

608a6b0e1513 3873287d83ed "/metrics-server --c…" 18 minutes ago Up 18 minutes k8s\_metrics-server\_metrics-server-7f6558bb65-68vxk\_kube-system\_e315bdb4-f42d-47c6-8dc3-69ed81896110\_0

8c488058442b k8s.gcr.io/pause:3.5 "/pause" 18 minutes ago Up 18 minutes k8s\_POD\_metrics-server-7f6558bb65-68vxk\_kube-system\_e315bdb4-f42d-47c6-8dc3-69ed81896110\_0

e784668c7271 kubernetesui/metrics-scraper "/metrics-sidecar" 22 minutes ago Up 22 minutes k8s\_dashboard-metrics-scraper\_dashboard-metrics-scraper-856586f554-srwpf\_kubernetes-dashboard\_cefc9780-bafb-4687-8305-5b5f6fb99900\_0

9a3a04ed245d kubernetesui/dashboard "/dashboard --insecu…" 22 minutes ago Up 22 minutes k8s\_kubernetes-dashboard\_kubernetes-dashboard-67484c44f6-qwh56\_kubernetes-dashboard\_4d5ccc77-80c1-4436-b4eb-ab98ab4af937\_0

054b28bdc946 k8s.gcr.io/pause:3.5 "/pause" 22 minutes ago Up 22 minutes k8s\_POD\_dashboard-metrics-scraper-856586f554-srwpf\_kubernetes-dashboard\_cefc9780-bafb-4687-8305-5b5f6fb99900\_0

c762511f936d k8s.gcr.io/pause:3.5 "/pause" 22 minutes ago Up 22 minutes k8s\_POD\_kubernetes-dashboard-67484c44f6-qwh56\_kubernetes-dashboard\_4d5ccc77-80c1-4436-b4eb-ab98ab4af937\_0

18c5ccabe194 6e38f40d628d "/storage-provisioner" 31 minutes ago Up 31 minutes k8s\_storage-provisioner\_storage-provisioner\_kube-system\_a4e485c8-90e1-4079-8c75-a8bdbced8c46\_0

d14f3d8d2f75 k8s.gcr.io/pause:3.5 "/pause" 31 minutes ago Up 31 minutes k8s\_POD\_storage-provisioner\_kube-system\_a4e485c8-90e1-4079-8c75-a8bdbced8c46\_0

3d5f22c917f1 8d147537fb7d "/coredns -conf /etc…" 31 minutes ago Up 31 minutes k8s\_coredns\_coredns-78fcd69978-7g9vq\_kube-system\_b7b21cea-0395-4bb8-bb3a-0824035f4bc0\_0

56347afa9a5c 873127efbc8a "/usr/local/bin/kube…" 31 minutes ago Up 31 minutes k8s\_kube-proxy\_kube-proxy-vcnln\_kube-system\_3cd101da-4bd6-4b04-b5b3-91e5b9369e9e\_0

adad403d0b94 k8s.gcr.io/pause:3.5 "/pause" 31 minutes ago Up 31 minutes k8s\_POD\_coredns-78fcd69978-7g9vq\_kube-system\_b7b21cea-0395-4bb8-bb3a-0824035f4bc0\_0

b64dabdcccbf k8s.gcr.io/pause:3.5 "/pause" 31 minutes ago Up 31 minutes k8s\_POD\_kube-proxy-vcnln\_kube-system\_3cd101da-4bd6-4b04-b5b3-91e5b9369e9e\_0

75b32e18ff85 5425bcbd23c5 "kube-controller-man…" 32 minutes ago Up 32 minutes k8s\_kube-controller-manager\_kube-controller-manager-minikube\_kube-system\_4787f37e041fd890d5499a8863561e5f\_1

e6009e2f9fdc e64579b7d886 "kube-apiserver --ad…" 32 minutes ago Up 32 minutes k8s\_kube-apiserver\_kube-apiserver-minikube\_kube-system\_fe49842e48a1ca6bac988e8ba88ecc53\_0

972b9abe3462 b51ddc1014b0 "kube-scheduler --au…" 32 minutes ago Up 32 minutes k8s\_kube-scheduler\_kube-scheduler-minikube\_kube-system\_97bca4cd66281ad2157a6a68956c4fa5\_0

ca608a527792 004811815584 "etcd --advertise-cl…" 32 minutes ago Up 32 minutes k8s\_etcd\_etcd-minikube\_kube-system\_08a3871e1baa241b73e5af01a6d01393\_0

1b137818ff3b k8s.gcr.io/pause:3.5 "/pause" 32 minutes ago Up 32 minutes k8s\_POD\_kube-scheduler-minikube\_kube-system\_97bca4cd66281ad2157a6a68956c4fa5\_0

0fbdceedffad k8s.gcr.io/pause:3.5 "/pause" 32 minutes ago Up 32 minutes k8s\_POD\_kube-controller-manager-minikube\_kube-system\_4787f37e041fd890d5499a8863561e5f\_0

250a06f78728 k8s.gcr.io/pause:3.5 "/pause" 32 minutes ago Up 32 minutes k8s\_POD\_kube-apiserver-minikube\_kube-system\_fe49842e48a1ca6bac988e8ba88ecc53\_0

6d4df1104313 k8s.gcr.io/pause:3.5 "/pause" 32 minutes ago Up 32 minutes k8s\_POD\_etcd-minikube\_kube-system\_08a3871e1baa241b73e5af01a6d01393\_0

docker@minikube:~$

## [Specification](https://kubernetes.io/docs/reference/generated/kubernetes-api/v1.18/)

AzureAD+NikolaySergeev@NS MINGW64 /d/GIT/nikolay.sergeev/Courses/Epam/Kubernetes/Task1 (master)

$ kubectl apply -f pod.yml

pod/nginx created

AzureAD+NikolaySergeev@NS MINGW64 /d/GIT/nikolay.sergeev/Courses/Epam/Kubernetes/Task1 (master)

$ kubectl apply -f rs.yml

replicaset.apps/webreplica created

AzureAD+NikolaySergeev@NS MINGW64 /d/GIT/nikolay.sergeev/Courses/Epam/Kubernetes/Task1 (master)

$ kubectl get pods

NAME READY STATUS RESTARTS AGE

nginx 1/1 Running 0 18s

web 1/1 Running 0 26m

webreplica-tk6hp 1/1 Running 0 10s

## Homework

* Create a deployment nginx. Set up two replicas. Remove one of the pods, see what happens.

**Result**: deployment will create another pod

AzureAD+NikolaySergeev@NS MINGW64 /d/GIT/nikolay.sergeev/Courses/Epam/Kubernetes/Task1 (master)

$ kubectl apply -f deployment.yml

deployment.apps/nginx created

AzureAD+NikolaySergeev@NS MINGW64 /d/GIT/nikolay.sergeev/Courses/Epam/Kubernetes/Task1 (master)

$ kubectl get pods

NAME READY STATUS RESTARTS AGE

nginx 1/1 Running 0 7m14s

nginx-585449566-kqk6m 1/1 Running 0 12s

nginx-585449566-vn8lq 1/1 Running 0 12s

web 1/1 Running 0 33m

webreplica-tk6hp 1/1 Running 0 7m6s

AzureAD+NikolaySergeev@NS MINGW64 /d/GIT/nikolay.sergeev/Courses/Epam/Kubernetes/Task1 (master)

$ kubectl delete pods nginx-585449566-vn8lq

pod "nginx-585449566-vn8lq" deleted

AzureAD+NikolaySergeev@NS MINGW64 /d/GIT/nikolay.sergeev/Courses/Epam/Kubernetes/Task1 (master)

$ kubectl get pods

NAME READY STATUS RESTARTS AGE

nginx 1/1 Running 0 7m45s

nginx-585449566-kgglg 1/1 Running 0 7s

nginx-585449566-kqk6m 1/1 Running 0 43s

web 1/1 Running 0 33m

webreplica-tk6hp 1/1 Running 0 7m37s